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ABSTRACT

The special nature of remedial programs and the variance in definitions, components, purposes, and structures are discussed to help institutional researchers design program evaluations. The term "remedial program" is used to refer to any combination of courses, support services, testing, placement practices, and institutional policies that are designed specifically for students who fail to meet standards in reading, writing, computation, or other skills deemed essential for success in college-level work at any given institution. Attention is directed to the following components that differentiate among programs: program objectives, credit and grades, modes of instruction, timing and duration of remedial education activities in a student's college studies, and the status and characteristics of remedial faculty and staff. The following five types of evaluation criteria are considered: input or efforts (resources), performance (results or outcomes), adequacy of performance, efficiency, and process. Additional topics include: the classification of students for remedial programs, testing and placement, and organization and funding for remedial programs. Appended is an outline for designing remedial education programs. (SW)

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# AIR Professional File

## Evaluating Remedial Education Programs

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Over the past several years, there has been growing interest in evaluating programs and measuring student outcomes in higher education (Barak, 1982; Conrad and Wilson, 1985; Ewell, 1983; Fincher, 1978). Models for program evaluation have multiplied, and many states require public institutions to conduct and submit evaluations to be used for program improvement and/or for decisions about program continuation or elimination. Institutional researchers frequently play a pivotal role in their organizations' evaluation processes, supplying essential data, helping faculty and staff understand and implement evaluation models, and interpreting results. A knowledge of the purposes and methods of program evaluation is fundamental for those working in the field of institutional research.

The purpose of this article is not to discuss program evaluations in general; rather, it is to focus on one particular type of program—remedial/developmental education. Its purpose is to sensitize researchers to the special nature of remedial programs and to the variance in definitions, components, purposes, and structures that characterize remedial education. Researchers must be cognizant of remedial/developmental education as it exists in higher education today if they expect to design and implement program evaluations that are consistent with sound research practices and that acknowledge the disparate nature of these programs.

This effort is complicated by the absence of a common definition of *remedial/developmental education*. Most often, terms such as *remedial*, *developmental*, *compensatory*, and *basic skills education* are used as synonyms, with college practice determining which one(s) will be given primacy at a given institution. Hence, in conducting evaluations of remedial programs, researchers must define and adopt terms that make sense in the specific institution(s) in which evaluation projects are being implemented. They then must use terms consistently and in compliance with the definitions put forth.

To simplify the remainder of this article, the term *remedial program* will be used to refer to any combination of courses, support services, testing and placement practices, and institutional policies that are designed specifically for students who fail to meet standards in reading, writing, computation, or other skills deemed essential for success in college-level work at any given institution.

### Why the Increased Interest in Evaluating Remedial Programs?

In the past half-decade there has been accelerating interest in evaluating remedial programs. This growing interest is due in part to a general emphasis on accountability now prevalent in education, but other reasons more specific to remedial education exist as well.

Remedial education is the fastest growing area in the college curriculum, having expanded greatly since the early 1970s (California Postsecondary Education Commission, 1983). A variety of statistics indicates why:

- Approximately 80% of American colleges accept anyone who applies for admission (California Postsecondary Education Commission, 1983).
- Half of the members of Stanford University's freshmen class in 1978 were receiving guidance at the university's learning assistance center (Roueche, Baker, and Roueche, 1984).
- In 1975 the University of California required remedial writing for half of its students (Roueche, Baker, and Roueche, 1984).

- More than $6 million was spent on "developmental studies" in Georgia's 33 public colleges and universities in 1981-82 (Roueche, Baker, and Roueche, 1984).
- More than half of entering freshmen in community colleges read below eighth-grade level, in spite of their having completed high school (Roueche and Roueche, 1982).

Clearly, remedial education is critical if colleges expect to raise academic standards without sacrificing access to higher education. The decline in numbers of 18 to 22-year-olds places even further pressure on institutions to bolster their remedial programs, since maintaining enrollment levels will require the admission of students who are deficient in basic academic skills, at least initially. This situation is likely to persist through the next decade as elementary and secondary schools tighten their own standards and reemphasize basic reading, writing, and computation in their curricula.

While interest in evaluating remedial programs is in part the result of internal pressures, it has also been externally imposed. Legislators responding to public skepticism about the return on investment in higher education, statewide testing policies exemplified by Florida's CLAST or New Jersey's Basic Skills Assessment Program, and funding-agency attempts to ensure that money allocated to higher education is being spent effectively combine to focus attention on remedial programs. Pressure also comes from employers who, frustrated about hiring college graduates unable to write and read, feel compelled to invest millions of dollars in corporate basic education programs.

In spite of this, there are relatively few empirically based evaluation studies that provide models, identify variables, and actually examine the extent to which remedial programs in higher education are working (Grant and Hoeber, 1978). Roueche and Snow (1977) reported data from 139 public community colleges and 134 senior institutions. They described and compared remedial programs and attempted to discover what was being done, and how well. To investigate the latter question, they looked at colleges' evaluation methods and the degree to which students persisted in college, completed the program, and completed a certificate program. They found that while programs differed, the most critical factor ensuring that students remediated their deficiencies and persisted to graduation was "faculty and staff commitment to student success" (p. 130).

Roueche, Baker and Roueche's (1984) national survey and statewide surveys such as those conducted by the California Postsecondary Education Commission (1983) or the Illinois Community College Board (1984) describe the nature, extent, costs, policies, and practices of programs and activities designed to improve students' academic skills. They contain little analysis of programs' successes in helping students remediate their deficiencies. Bers (1985) describes some of the frustrations encountered when several community colleges attempted to work together to design and implement an evaluation model, and currently a consortium of California community colleges is developing a model to pilot in 1986-87 (Stark, 1986).

There are many reasons for the paucity of evaluation studies of remedial programs. In many places, uncertainty about program goals precludes identifying criteria for measuring "success." Faculty and staff are more concerned with meeting students' needs than with evaluating the results of their efforts. Reliance on "soft money" or limited institutional funds further impedes evaluation activities, as administrators are reluctant to commit dollars to projects not perceived to serve students directly. The uncertain status of remedial programs and faculty in many institutions makes staff leery of submitting to evaluations which might suggest programs are ineffective, particularly when there is fear that program continuation is at stake.

**What Characterizes a Remedial Program?**

Remedial programs exhibit tremendous variance in components and governing policies. Even the term *programs* is used loosely. Some remedial programs are truly *programs* in the broadest sense, comprising an administrative structure, sequenced curriculum, identified faculty, designated support services—even special residence facilities. Other *programs* exist in name only, and consist simply of a small number of unrelated courses or services available to any students electing to use them.

Roueche and Snow (1977) suggest that remedial programs reflect a continuum ranging from isolated remedial courses attached to existing disciplines through a distinct division or department of remedial studies, complete with faculty, budget, and support services. Grant and Hoeber (1978) found the more common content areas of remedial programs to be reading, grammar, mathematics, science, ethnic studies, study (survival) skills, self-development, and career/life planning.

In developing and implementing evaluations of remedial programs, researchers will need to clarify, describe, or be aware of several key components that differentiate among programs. These include program objectives, policies relating to credit and grades, modes of instruction, timing and duration of remedial education activities in a student's college career, and the status and characteristics of remedial faculty and staff.

**Program Objectives.** Remedial programs differ in objectives, and multiple or even conflicting objectives may exist within the same program. Since objectives are not always explicit, constituencies may infer those that best suit their own values and needs. Examples of diverse objectives are: to assist students to achieve a predetermined skill level, to enable students to transfer into and succeed in a regular curriculum, and to attract and retain students at the institution regardless of the likelihood they will complete a degree. The researcher needs to clarify objectives and to note whether consensus exists before proceeding to design a research project.

**Credit and Grades.** Policies governing the awarding of credit and grades in remedial programs further multiply the distinctions among programs. In some cases, no credit is awarded for study in remedial programs, particularly when that study is delivered through tutoring and supplementary assistance rather than through structured courses. Alternatively, some institutions do count credits for such purposes as financial aid, but do not count remedial credits toward fulfilling degree requirements. Roueche, Baker and Roueche (1984) note an apparent growth between 1977 and 1982 in the number of institutions awarding credit for basic skills courses *and* applying credit toward degrees, but since the revival of interest in academic standards and rigor dating from the 1983 publication of "A Nation at Risk," it

is likely that this policy has been the subject of review and probable revision at many colleges.

While grades may be awarded in remedial courses, not all institutions include these in calculating student grade point averages, or they use pass/fail or some version thereof. Moreoever, some institutions eliminate grades earned in remedial courses when they classify students as in good standing or on probation.

Whatever the credit and grading policies may be, they should be described clearly in evaluation studies. Attempts to compare the outcomes of remedial programs across institutions can be misleading if different policies are used, because grade point averages, academic standing, ratios of courses completed, and other commonly used outcome measures will be directly affected by the policies applied.

**Modes of Instruction.** Many teaching modes are used in remedial programs. Self-contained classes, tutorials, computer-assisted instruction, special skills sections of existing courses, and self-paced modules exemplify the range of instructional formats. In a recent survey of colleges in the Southeast, Abraham (1986) discovered the most common supplements to remedial coursework to be individual peer and faculty tutoring, supplemental testing, and self-paced programmed tests.

**Timing and Duration.** Institutions require or recommend that remedial instruction occur at various points during their students' college careers. In some institutions the remedial program is a voluntary or required pre-freshman experience, often scheduled in the summer preceding the freshman year or during the first regular term in which the student is enrolled. Where acceptance to the college is provisional, a student's matriculation as a college-credit rather than special student can be contingent upon successful completion of the remedial program.

While it may appear logical to require that students remediate their academic deficiencies early in their college careers, this is not always the case. Where the pattern of college enrollment is predominantly part time and sporadic, it may be detrimental to both students and the institution to require completion of all remedial work in all subject areas before the student is able to enroll in college-level courses. For example, if a part-time student is interested primarily in English classes, compelling completion of remedial mathematics before allowing enrollment in college English will be disadvantageous. Thus, most colleges allow students to enroll in regular classes simultaneously with remedial courses, except in the particular disciplines in which remedial work is needed.

Duration of remedial work may also vary, and sometimes time limits for successful completion of this work are established. Timetables typically are linked to credit hours completed or semesters of enrollment, so that students must complete all remedial work prior to a stipulated point in their academic careers.

**Faculty.** Grant and Hoeber (1978) and Martin and Swindling (1984) identify many critical questions related to the status and tenure of faculty in remedial programs. Are faculty considered part of the regular, tenured staff? Where do these faculty rate in the hierarchy of the institution? Are remedial faculty required to have special degrees, training, or other preparation? Do remedial courses constitute all or only a part of teaching loads? Are faculty full or part time? What messages does the institution convey to and about faculty teaching remedial courses—through such cues as assignment of offices, salaries, awarding of tenure, and participation in college governance activities? Many of the same questions applying to faculty are pertinent to tutors, counselors, and others delivering remedial help to students.

### Who Are Remedial Students?

Even when the characteristics of remedial programs are described and measured, many additional questions require clarification in a comprehensive evaluation. Among the most important questions is: Who is a remedial student?

**Institutional Autonomy in Classifying Students.** In its 1983 study of remedial education, the California Postsecondary Education Commission stated that a student's need for remediation is relative—to the institution, to the student's course of study, to the student him or herself, and to what is considered college-level work. The concept of relativity argues for institutional autonomy in classifying students, and several recent surveys of remedial education practices have found this to be the dominant pattern (Roueche, Baker and Roueche, 1984; Abraham, 1986). Abraham also confirmed Keimig's (1983) assertion that agreement has never been reached on what constitutes "college-level" instruction. Since colleges are unclear about what work is college level, it is no wonder they apply different standards in defining what work is "remedial."

The state of New Jersey has chosen a different route (Morante, 1986; Morante, Faskow, and Menditto 1984). The New Jersey College Basic Skills Placement Test, created by the Board of Higher Education in 1977 and first administered in 1978, is a criterion-referenced test to place students in both public and private institutions across the state.

**Confusion with Other Groups.** Even when institutions clearly stipulate the standards by which they will classify students, remedial or not, application of standards is often difficult. Learning difficulties are caused by many factors, not all of which can be addressed through remedial education, and there seem to be increasing numbers of students enrolling in higher education who have learning problems of one kind or another. Examples include students with limited English language proficiency, physically disabled students who require accommodations such as notetakers or signers, learning-disabled students who need special assistance to help them process and integrate information, and students who are mildly retarded and whose limitations will always prevent them from achieving success in regular college courses. The enrollment of minority students further contributes to the confusion over distinguishing remedial students from other students, and in some institutions special admissions or remedial programs are targeted almost exclusively to a minority population.

In theory, these groups are distinct, each manifesting different signs of learning deficiencies and each requiring different combinations of counseling, advisement, support services, and academic programs. In practice, however, distinguishing among students with academic skill limitations who can benefit from remedial education is imprecise and frustrating. Consequently, students sometimes are referred to remedial programs by default,

because there seems to be nowhere else for them to go within the institution.

**Testing and Placement**

Frisbie (1982) defines placement as the "process of making the best possible match between a student's current achievement status and the prerequisites of various alternate course sequences" (p. 133). In higher education a variety of methods and measures is used to effect placement. Some institutions focus on the predictive validity of their placement methods, striving to place students in courses in which they can succeed without simply reviewing skills already held. Other institutions emphasize placement efficiency, testing and categorizing many students quickly and at low expense, regardless of whether the method provides comprehensive or even valid information about student skills. Some methods are designed primarily to ensure that enrollment quotas in certain courses are filled.

Institutions can select placement instruments from a broad array of commercially available, standardized tests, though many colleges choose to develop their own. Concerns such as cost, validity, reliability, length, and ease of scoring and administration affect that choice. Tests can be normative or criterion referenced, and they can test general achievement or aptitude—the SAT, ACT, or subsections—or assess specific knowledge in a content area—as do ACT's ASSET and the New Jersey Basic Skills Placement Test (Weber, 1985). Some institutions substitute or supplement tests with non-test criteria such as high school GPA or performance in selected high school courses. Institutions also differ in the methods used to establish cutoff scores on tests (Weber, 1985). Fixed quotas serve to guarantee or to limit enrollment in specified courses, with cutoff scores changing from term to term. Expert judgment can be used to assess whether a student's test results indicate remediation. Informed judgment based on statistical methods and predictions, e.g., the correlation between test results and course grades, is a third method.

Once institutions determine which placement tests to use, they must then decide how to use the results. Grant and Hoeber (1978) suggest that, while the typical use of test results is for course placement, an appropriately designed test can also provide a diagnostic assessment to identify specific academic weaknesses.

In most instances, students are mandated to take placement tests, though this is not always the case. Some institutions use the results of the tests merely to advise students about course levels that appear most appropriate for skill levels. To complicate matters further, an institution might subscribe to different policies and practices for reading, writing, and mathematics.

Nationally, there is now a movement toward mandatory testing and placement of students in writing and mathematics classes. Testing and placement in reading courses is more problematic, although many educators believe that inability to read is the fundamental reason that students fail to succeed in courses as disparate as accounting and political science. Mandatory testing and/or placement in study skills courses is not widespread, except where students are admitted into a comprehensive remedial program that includes such a course.

**Organization and Funding for Remedial Programs**

The variance among institutions in the components and policies of their remedial programs is mirrored in the diversity of administrative structures and funding formulas. The two areas in which remedial programs are most often located are academic affairs or student services. While some programs are self contained, components often are dispersed among departments teaching remedial courses.

Hartsough (1983) suggests benefits from and drawbacks to housing remedial programs in the academic and student services sectors. The primary benefit from locating programs in academic departments is integrating skill-building with existing curricula, a benefit also advocated by Martin and Swindling (1984), who emphasize the importance of alliances between remedial and other instructors. Hartsough goes on to suggest a drawback to locating remedial programs in the academic area: that is, faculty in traditional departments may not know how to teach remedial students and, worse, may blame students for lack of progress that is caused primarily by inappropriate teaching and the poor selection of instructional materials.

The main benefit of housing programs in student services is that many needed support and auxiliary services (e.g., testing and counseling) already reside there. However, gaining academic credibility and prompting faculty to integrate basic skills into their courses may be more difficult, especially if there is poor communication between the academic and student services sectors of an institution.

Because many institutions have assigned remedial education responsibilities to existing departments and services, and these have grown willy-nilly rather than according to a coherent plan, remedial programs are frequently fragmented among departments as well as across both academic and student services areas. Identifying, advising, monitoring, and assessing the progress of remedial students is more difficult in such situations, especially when remedial instruction is perceived to be a secondary responsiblity, even a burden, for departments.

In examining funding for remedial programs, several questions require investigation. Is the budget supported by institutional (hard) money or by grant (soft) revenue, and in what proportions? If by grants, are these formula based or obtained through a competitive process? Are remedial program staff members expected to participate in generating funds? Are jobs dependent on successful fund-raising?

State funding formulas play a large role in encouraging or discouraging institutions from offering remedial education. Pressed for funds, institutions may find themselves directing students away from needed remedial work and into courses that are more lucrative for the college. Where funding is based on credits generated in structured classes, institutions that offer remedial work through alternative instruction modes such as tutoring may find themselves foregoing reimbursement.

**Criteria for Evaluating Remedial Programs**

There are two important first steps or initial issues which must be addressed at the beginning of any program review. One is to specify evaluation criteria, and the other is to identify indicators and measures that will enable researchers to assess the achievement of these criteria—to operationalize them. In this section, consideration will be given first to general concerns of stipulating evaluation criteria for remedial programs and

second to specific criteria that often are included in a research design.

**General Concerns.** Grant and Hoeber (1978) argue that it is important to consider the affective development of students engaged in remedial study as well as their cognitive, skill, and behavioral development. They suggest that evaluators look at such elements of development as self-esteem, achievement motivation, and locus of control. While it is hard to argue with this, including such criteria expands the complexity of research projects and requires the inclusion of additional measures that depend on student-completed inventories and self-reports of attitudes and opinions.

The extent to which remedial programs provide social benefits might also be considered. Social benefits are important because individuals who lack the basic skills of reading, writing, and computing are frequently a drain on society and the economy, requiring welfare and special benefits. Such individuals also may lack the ability to integrate traditional liberal studies and an understanding of society and culture with whatever technical job skills they master, leading to a narrow view of society and their role in it.

Disentangling teaching modes from student progress and determining whether the teaching mode, course content, instructor capabilities, or the interaction among these accounts for student progress is always an issue in program evaluations. In remedial programs, this concern is exacerbated because of the heavy reliance on multiple teaching modes.

Mingle (1986) suggests another general concern. He argues that currently we have a pluralistic concept of the core of knowledge that students should have at entry to and, usually, at exit from higher education. Yet, any assessment project will have to define that core in order to measure whether or not students obtain that knowledge. Mingle's ideas are relevant also to the notion of basic skils: that is, what constitutes the basic academic skills a student needs at entry to a given course or curriculum, and at its conclusion? Again, these concerns are not unique to remedial education, but they emphasize the importance of clarifying and seeking consensus on expectations for student performance as a prerequisite for developing measures of "success."

Mingle continues with an additional concern, the danger of being seduced by any single measure of quality. Where programs are under pressure to provide evaluations, researchers or program staff might be tempted to select a particular variable (e.g., percent of students retained at the institution) and use this as a measure of program success or failure. However, the complexities of human learning, multiple factors affecting student behavior, and flexible goals of students make any single measure too narrow and simple.

Another general concern relates to the propriety of using the standard research design of control and treatment groups to evaluate the outcomes of remedial programs. While this method is an accepted and theoretically sound research strategy, there are serious ethical implications to withholding needed remedial work from students who need it. If an institution's policy is to make remedial work voluntary, then a quasi-control group design can be established by comparing the progress of students who need remedial work and enroll in appropriate courses and programs with the progress of those who need remedial work but do not so enroll.

Finally, the difficulty—sometimes impossibility—of gathering and analyzing data about students must be considered. This is an especially thorny problem in institutions that have a large enrollment of part-time students and students who transfer. The pattern of enrollments in these colleges is erratic, as many students stop-out for one or more semesters, or transfer to other colleges and then return. Obtaining information about educational experiences gained elsewhere is difficult unless colleges share data through a statewide network, rarely the case.

Lack of thorough follow-up studies may lead to ambiguity in interpreting mere numbers. Students who complete nearly all of a remedial program and disappear from an institution might be among the college's greatest successes, having overcome deficiencies and moved on to college-level study elsewhere. Alternatively, they might be considered the college's greatest failures, failing to complete a degree or certificate. Sophisticated follow-up studies and carefully constructed data sets are imperative if reasonable evaluations of remedial programs are to be made.

These, then, are among the general concerns that should be discussed as an institution designs and implements evaluations of remedial programs. There are no generally accepted or "right" answers to the questions raised. However, discussion and clarification of a college's views on these prior to the identification of specific criteria for measuring the resources, processes, and outcomes of its remedial program will help alleviate confusion about and misuse of research findings.

### Specific Criteria

Many specific criteria can be used to evaluate remedial programs (Maxwell, 1979). The selection and definition of these will vary, based on such influences as availability of data, objectives of the program and courses, ability and sophistication of researchers, adequacy of research support, and educational and political pressures both from within the institution and from without.

Following Suchman (1967), we suggest it is useful to classify evaluation criteria in five categories. These are inputs or efforts (resources), performance (results or outcomes), adequacy of performance, efficiency, and process.

**Input Measures.** Input (resource) measures, the first of the evaluation criteria, can be looked at from the perspective of the institution as well as from the perspective of students in the program. From the institutional perspective, input measures include funds, physical resources, and personnel. Sources and certainty of program revenues need to be identified along with the actual dollars allocated to the program. Physical resources include such variables as physical proximity of remedial program classrooms and offices to the "center" of the campus, quality and spaciousness of these quarters, type and amount of instructional and administrative equipment and software, and overall appearance of offices and classrooms. Measures of personnel input include the number and qualifications of faculty and staff and percent of their time devoted to the program.

From the perspective of students, input measures include number of hours in remedial classes; amount of time and effort put into studying; number of hours in

tutoring, counseling, and related activites; and student adherence to class expectations such as completing homework and spending prescribed time in tutorials or labs.

**Performance Measures.** Performance measures include grade point averages, rates of attrition from remedial and regular courses, changes in pre- and post-test results, performance in subsequent courses, persistence at the institution, movement into mainstream curricula, successful transfer to other institutions, and graduation. Clowes (1984) suggests that one of the unique features of remedial programs is that students remain at the institution and become the input to other academic programs and curricula. Data about their performance, then, are available and can be used to provide feedback to the remedial program. However, Clowes assumes here that the student's goal is to stay within the parent institution—which is not always the case, especially in open-enrollment commuter institutions such as community colleges. Here, students' goals are frequently diverse and unclear, and many enroll to remediate deficiencies so they can transfer elsewhere or obtain employment.

**Adequacy in Meeting Needs.** Adequacy of programs in meeting student needs can be assessed by looking at such variables as student satisfaction, the extent to which students encourage their friends to enroll in the program, students' reports that they use the skills they learned, faculty perceptions of student performances, number of students referred by faculty, and the image the program has within the institution.

**Efficiency Measures.** Efficiency is investigated by looking at a variety of calculations. For example, program costs can be calculated by obtaining estimates of the number of hours staff work on a program multiplied by their hourly pay, and adding to this appropriate estimates of overhead costs. Obviously the accuracy and legitimacy of such calculations will depend largely on whether the institution has a credible algorithm for calculating such costs and whether it is even possible to distinguish between costs incurred as a result of the remedial program per se and a service available to everyone. In other words, the institution must determine which costs to allocate to the remedial program.

O'Hear and Pherson (1982) suggest two cost-benefit indices that look at program costs:

$$\text{Index 1} = \frac{\text{Developmental Student Credits} \times \text{Tuition}}{\text{Program Credits} \times \text{Per-Credit Cost}}$$

$$\text{Index 2} = \frac{(\text{Developmental Student Credits} - \text{Control Group Credits}) \times \text{Tuition}}{\text{Program Credits} \times \text{Per-Credit Costs}}$$

The first index calculates the net revenue flowing from the remedial program; an index above 1.0 indicates the program is generating more dollars than it is costing. The second index is most useful when there is a control group of comparable students who did not take remedial program courses, although it is possible to use the entire student population as the control group. The index calculated here indicates the extent to which remedial program students generate net revenues beyond (or less than) control group students.

Both indices depend on accurate and credible calculations of figures such as tuition, per-credit costs, and program credits. However, many ambiguities may reside in these superficially clear indicators. For example, are tuition figures gross tuition or net tuition after institutional aid? Are credit hours those in remedial courses only or credit hours in all courses taken by remedial students (based on the assumption that without the remedial program they would not be at the college at all)? Are per-credit costs credible and meaningful, or are they calculated using an accounting formula written by a college auditor, and devoid of managerial information?

Bers (1985) reports on an attempt to compare program costs among several community colleges in Illinois which highlights many of the problems inherent in locating accurate information. She found that institutions allocated costs for remedial programs across many accounts. Often it was impossible to discern the proportion of the budget of a particular program or office that was expended on remedial programs, and relying on unit (per-credit) costs proved inappropriate since so much remedial work occurred outside of credit-bearing courses.

**Process Measures.** Process criteria include variables such as the extent to which remedial faculty and staff participate in college governance activities and interact with or are isolated from regular departments, the degree to which remedial programs are institutionalized rather than perceived as tangential to the mission of the college, perceptions of the quality of faculty-student interactions, and ways in which students are recruited for remedial programs. In some ways, the process criteria are most difficult to measure, since they relate to human interactions and perceptions.

### Assessing Success

The "success" of a remedial program depends largely on the purposes of the program at a given institution, the criteria used to indicate whether those purposes have been achieved, and the validity and reliability of measures of those criteria. While comprehensive state and national studies have emphasized description rather than evaluation of remedial programs, there are many studies that do attempt to evaluate programs at one or a small number of institutions. Unless they clearly specify success criteria, methods of classifying remedial students, and the parameters of the remedial program being evaluated, all of this to enable researchers to determine program comparability, such studies will be of little help in actually comparing one program to another.

Roueche and Snow (1977) reported the results of a national survey. They concluded that the three key elements in successful programs are (1) faculty committed to students' success, (2) supportive learning climate with diverse services such as counseling and tutoring, and (3) organizational support. They advocate a department or division of developmental studies. Boylan (1983) surveyed the literature on remedial education and identified the characteristics that seem to be associated with successful programs, even though the interaction between these characteristics and successful outcomes is unclear. He divided characteristics into those relating to program content and those relating to program process. Content characteristics include: diagnostic services of student needs at the beginning of their participation; services to help students master basic skills in reading, writing, and mathematics; services to help promote per-

sonal developmental and academic adjustment; services designed to promote critical reasoning and thinking skills; and ongoing program evaluation. Process characteristics include: individualized approaches with emphases on academic and personal development; a focus on improvement of learning rather than remediation of deficiencies; structured procedures with emphasis on goals and objectives; frequent student-faculty contact; and systematic planning, monitoring, and revision of program activities. In sum, Boylan emphasized that programs should be comprehensive, systematic, and personal.

**Conclusion**

The researcher planning and implementing evaluations of remedial programs will probably need to spend a significant amount of time helping program staff identify, obtain access to, and understand data that are appropriate to use. In addition to using institutional data bases, program evaluators may wish to obtain information from surveys, focus groups, observations, and unstructured interviews with students, faculty, and staff. Combining data derived from these sources can be a challenging task, but it is worth the effort if the research results are to portray the complexity of forces affecting student learning and achievement. To assist researchers in conducting a program evaluation, a simple outline that identifies critical questions to be considered in the design of the evaluation is appended.

Remedial education is a sensitive topic in most colleges and universities, viewed with much ambivalence. Faculty teaching college-level courses complain about unprepared students and want remedial programs to help students correct deficiencies, yet they often resent funds being diverted from their departments to the remedial program. Legislators and other public officials wonder why money must be spent at the college level to assist students in obtaining proficiencies they should have had at the time of high school graduation. College administrators aren't quite sure where remedial programs belong, so they frequently let them evolve without coordination or cohesion. Students are bewildered, having been admitted to college and then told they lack college-level skills.

Institutional researchers cannot resolve political issues about remedial education, nor can they relieve tensions about remedial programs or the uncertainty about the status of remedial faculty and staff. They can, however, play a key role in helping members of the college community understand remedial education, both in purpose and in outcomes.

**Appendix**

**Outline for Designing Remedial Program Evaluations**

Researchers must consider each of these points in designing a remedial program evaluation that will be useful, feasible, and appropriate for their institutions.

1. Purposes for and uses of program evaluation
2. Program objectives
3. Crucial policies defining academic regulations of the program (e.g., awarding of credit and grades, timing and duration of remedial education)
4. Modes of instruction
5. Remedial program faculty (e.g., conditions of employment, funding, qualifications)
6. Criteria and processes classifying remedial students (e.g., assessment instruments, cutoff scores, mandatory or voluntary course assignment, special admissions categories and conditions thereof)
7. Organizational structure of the remedial program (e.g., lines of authority and responsibility)
8. Sources and amounts of funding
9. Criteria to evaluate program (e.g., inputs, performance, adequacy, efficiency, and process)
10. Availability and propriety of data to measure criteria
11. Budget for conducting evaluation

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